ARCSTONE Improvements, Phase I

Completed Technology Project (2018 - 2019)

Project Introduction

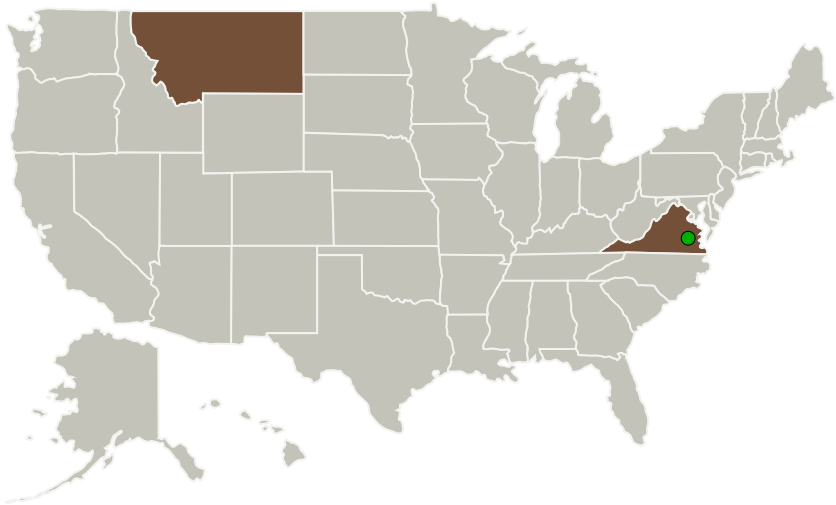
This SBIR Phase I effort will be devoted to exploring possible improvements for the NASA ARCSTONE instrument. One possible improvement will be to utilize total internal reflection optics for the fore-optics of the system. Possible benefits include reduced polarization and smaller size. A second possible improvement will be to use an optical design that requires only one focal plane array for the entire spectral range of 350-2,300 nm. The primary advantage of this approach would be reduced size and weight. During this effort optical ray-trace designs will be developed and optimized, followed by development of preliminary opto-mechanical designs. This will enable side-by-side comparisons with the existing ARCSTONE instrument. If warranted, plans will be developed for prototype fabrication and testing in Phase II.

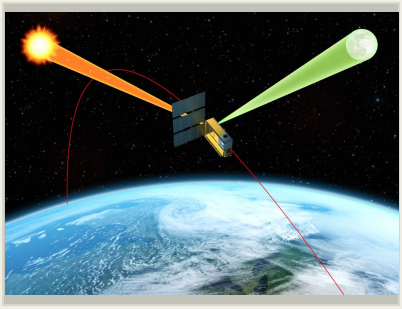
Anticipated Benefits

The improvements developed during this effort will be integrated into the existing NASA ARCSTONE project devoted to calibrating the lunar reflectance.

There are currently no envisioned non-NASA applications.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Resonon, Inc.	Lead Organization	Industry	Bozeman, Montana
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
Montana	Virginia

Project Transitions

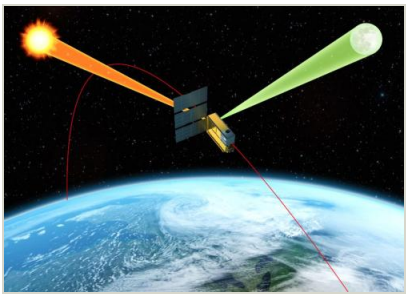
July 2018: Project Start

February 2019: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/140933)*

Images



Briefing Chart Image
ARCSTONE Improvements, Phase I *(https://techport.nasa.gov/image/134465)*

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Resonon, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

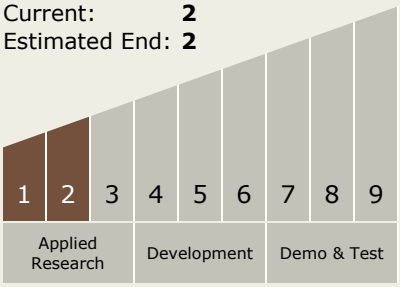
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Rand Swanson

Technology Maturity (TRL)

Start: **1**
Current: **2**
Estimated End: **2**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destination

Earth